

What is claimed is:

- 1 1. A method of monitoring and restoring a communications network,
2 comprising the steps of:
3 receiving a data stream encoded with a transmission code;
4 decoding the data stream to determine a performance metric based
5 on a number of transmission code violations; and
6 restoring the performance of the network in response to the
7 performance metric.
- 1 2. The method of claim 1, including the step of:
2 generating an error rate based on the number of transmission code
3 violations for use as the performance metric.
- 1 3. The method of claim 1, including the step of:
2 generating a switch signal in response to the performance metric
3 exceeding a predetermined value.
- 1 4. The method of claim 3, including the step of:
2 transferring the data stream from a first link to a second link in
3 response to the switch signal.
- 1 5. The method of claim 2, wherein the step of generating an error rate
2 includes the step of:
3 dividing a number of transmission code violations by a
4 predetermined period of time.
- 1 6. The method of claim 2, wherein the step of generating an error rate
2 includes the step of:

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dividing a number of transmission code violations by a predetermined number of data frames.

7. A system for monitoring and restoring a communications network, comprising:

a first network element, comprising:

a transmitter having an encoder coupled to receive a data stream, the encoder for encoding the data stream with a transmission code;

a switch coupled to receive the encoded data stream from the transmitter, the switch coupled to a switch signal for switching the encoded data stream from a first link to a second link;

a second network element coupled to the first network element via the first and second links, comprising:

a receiver having a decoder coupled to receive the encoded data stream from the first network element, the decoder for decoding the encoded data stream and determining a number of transmission code violations; and

a monitoring module coupled to receive the number of transmission code violations from the receiver, the monitor module for determining a performance metric based on the number of transmission code violations, and for providing a switch signal to the switch in the first network element if the performance metric exceeds a predetermined value.

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1 8. The system of claim 7, wherein the performance metric is an error rate
2 determined from the number of transmission code violations.

1 9. The system of claim 7, wherein the transmission code is an 8B/10B code.

1 10. The system of claim 7, wherein the transmission code is an 4B/5B code.

1 11. The system of claim 7, wherein the communications network is a Gigabit
2 Ethernet.

1 12. The system of claim 7, wherein the switch signal is coupled to a third
2 network element in a second communications network.

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